Microstructure Pressure Sensors

0 mm Hg to 300 mm Hg through 0 psi to 100 psi

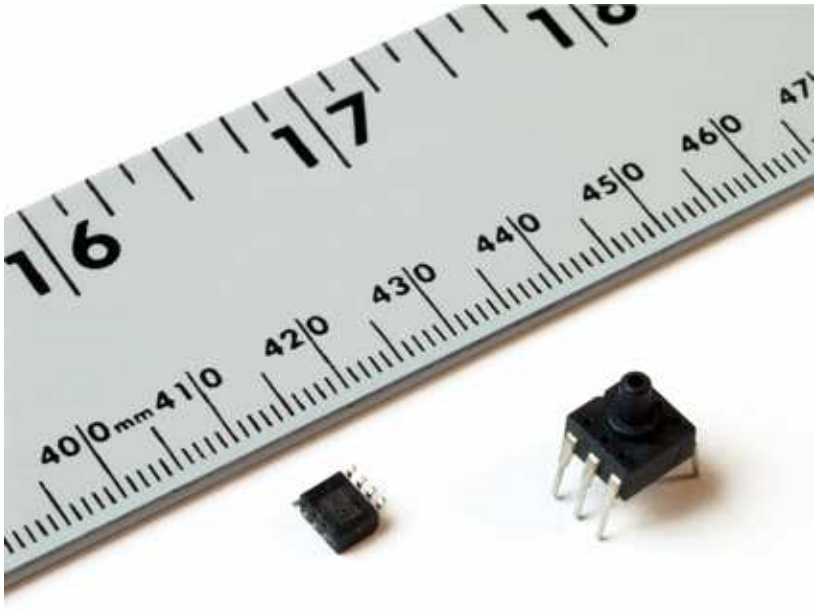
HPX Series

FEATURES

- Miniature package size
- Available in gage and absolute sensing types
- Non-compensated and non-calibrated
- Pressure ranges from 0 psi to 100 psi
- Response time is 1 ms typical
- Two package styles, DIP and SOIC
- Wide operating temperature range
- Surface mount and through hole mounting

TYPICAL APPLICATIONS

- Medical equipment
- Altimeters and barometers
- Pneumatic controls
- Leak detection
- Consumer goods



The HPX Series Pressure Sensors provide accurate, low cost sensing in two different package configurations, DIP (Dual In-line Package) and SOIC (Small Outline Integrated Circuit).

The gage devices come in a 6-pin DIP and the absolute devices come in an 8 pin surface mount SOIC package. Both sensor styles are non-amplified and non-calibrated. The user may provide the HPX Series sensors with amplification and signal conditioning circuitry to meet specific application requirements.

These easy-to-use sensors feature Wheatstone bridge construction, silicon piezoresistive technology and ratiometric output for proven application flexibility, design simplicity and ease of end product manufacturing.

These devices are intended for use with non-corrosive, non-ionic working fluids such as air and dry gases.

⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices, or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

⚠ WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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GENERAL SPECIFICATIONS – GAGE (DIP)

Parameter	Min.	Typ.	Max.	Unit
Excitation	–	3.0	10.0	Vdc
Input impedance	4 k	5 k	6 k	Ohm
Output impedance	4 k	5 k	6 k	Ohm

ENVIRONMENTAL SPECIFICATIONS – GAGE (DIP)

Parameter	Characteristic
Operating temperature range	-20 °C to 100 °C [-4 °F to 212 °F]
Storage	-40 °C to 125 °C [-40 °F to 257 °F]
Vibration	1.5 mm at 10 Hz to 50 Hz
Weight	<1 g [<0.035 oz]
Life	1 million cycles min. (5.8 psi is 100,000 cycles)
Lead solder temperature	DIP solder bath: max. 250 °C [482 °F] for 5 s

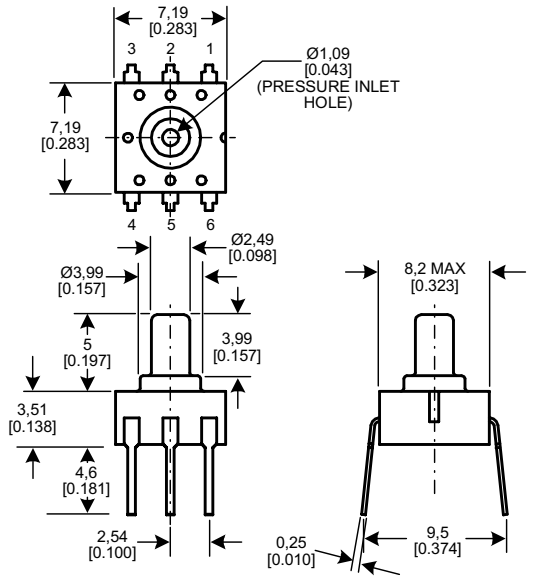
PERFORMANCE CHARACTERISTICS – GAGE (DIP)

Pressure Range	Linearity % Span	Hysteresis % Span	Null Offset (mV)	Span (mV)	Overpressure (psi) Max.	Response Time (ms) Typ.	Temperature Coefficient of Null Offset (% Span/ºC) Typ.	Temperature Coefficient of Span (% Span/ºC) Typ.
5.8 psi (300 mm Hg)	±0.5	±0.5	±20	40 ±12	15	1.0	±0.08	-0.1 to -0.3
15 psi	±0.3	±0.3	±30	42 ±12	45	1.0	±0.08	-0.1 to -0.3
30 psi	±0.3	±0.3	±30	60 ±20	90	1.0	±0.08	-0.1 to -0.3
50 psi	±0.3	±0.3	±30	60 ±20	150	1.0	±0.08	-0.1 to -0.3
100 psi	±0.3	±0.3	±30	60 ±20	300	1.0	±0.08	-0.1 to -0.3

Notes:

1. Reference conditions (unless otherwise noted): Supply voltage, V_S=3.0 ± 0.01 Vdc; Ta=25 °C [77 °F]. Output is ratiometric within the supply voltage range (Vs).
2. Temperature coefficients are typical values between -20 °C and 100 °C [-4 °F and 212 °F].
3. Span is the algebraic difference between the output voltage at the specified pressure and the output at zero pressure. Span is ratiometric to the supply voltage.
4. Response time for 0 psi to full-scale pressure step change, 10 % to 90 % rise time.

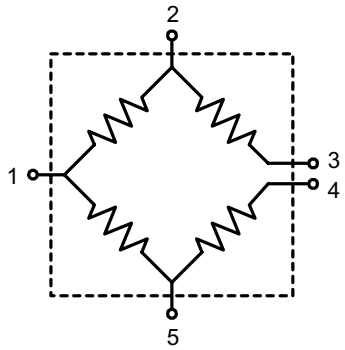
GAGE (DIP) MOUNTING DIMENSIONS (for reference only mm[in])



Absolute Sensor Terminal Connection Table

Terminal Number	Name
1	Power Supply (+)
2	Output (+)
3	Power Supply (-)
4	Power Supply (-)
5	Output (-)
6	No Connection

Wheatstone Bridge



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GENERAL SPECIFICATIONS – ABSOLUTE (SOIC)

Parameter	Min.	Typ.	Max.	Unit
Excitation	–	3.0	10.0	Vdc
Input impedance	4 k	5 k	6 k	Ohm
Output impedance	4 k	5 k	6 k	Ohm

ENVIRONMENTAL SPECIFICATIONS – ABSOLUTE (SOIC)

Parameter	Characteristic
Operating temperature range	-40 °C to 125 °C [-40 °F to 257 °F]
Storage temperature range	-40 °C to 125 °C [-40 °F to 257 °F]
Vibration	1.5 mm at 10 Hz to 50 Hz
Weight	<1 g [<0.035 oz]
Life	1 million cycles min.
SMT solder	Sn 96.5 Ag 3.5 No Clean Flux Sn 63 Pb 37 No Clean Flux
SMT reflow profile	Max peak temperature of 250 °C [482 °F] for 10 s

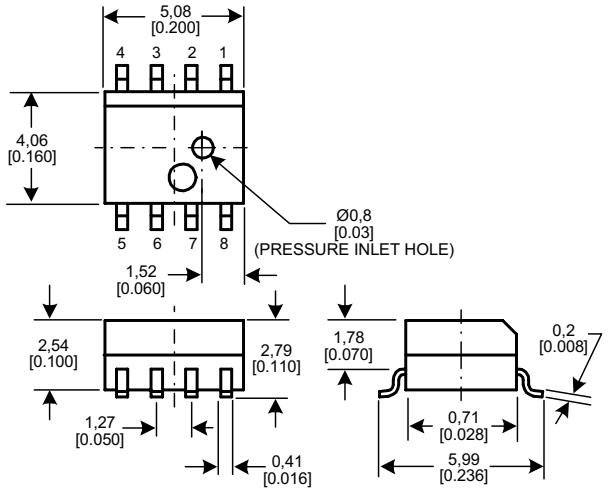
PERFORMANCE CHARACTERISTICS – ABSOLUTE (SOIC)

Pressure Range	Linearity % Span	Hysteresis % Span	Null Offset (mV)	Span (mV)	Overpressure (psi) Max.	Response Time (ms) Typ.	Temperature Coefficient of Null Offset (% Span/ºC) Typ.	Temperature Coefficient of Span (% Span/ºC) Typ.
15 psi	±0.3	±0.3	±30	87 ±18	45	1.0	±0.08	-0.1 to -0.3
30 psi	±0.3	±0.3	±30	60 ±20	90	1.0	±0.08	-0.1 to -0.3
50 psi	±0.3	±0.3	±30	60 ±20	150	1.0	±0.08	-0.1 to -0.3
100 psi	±0.3	±0.3	±30	60 ±20	300	1.0	±0.08	-0.1 to -0.3

Notes:

1. Reference conditions (unless otherwise noted): Supply voltage, V_S=3.0 ± 0.01 Vdc; Ta=25 °C [77 °F]. Output is ratiometric within the supply voltage range (Vs).
2. Temperature coefficients are typical values between -20 °C and 100 °C [-4 °F and 212 °F].
3. Span is the algebraic difference between the output voltage at the specified pressure and the output at zero pressure. Span is ratiometric to the supply voltage.
4. Response time for 0 psi to full-scale pressure step change, 10 % to 90 % rise time.

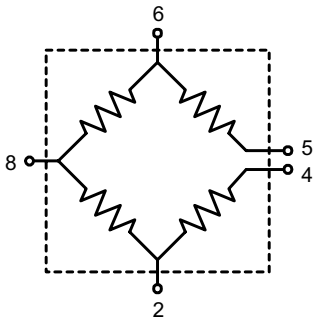
ABSOLUTE (SOIC) MOUNTING DIMENSIONS (for reference only mm[in])



Absolute Sensor Terminal Connection Table

Terminal Number	Name
1	No Connection
2	Output (+)
3	No Connection
4	Power Supply (-)
5	Power Supply (-)
6	Output (-)
7	No Connection
8	Power Supply (+)

Wheatstone Bridge



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ORDER GUIDE

Pressure Range	Absolute (SOIC)	Gage (DIP)
0 psi to 5.8 psi (0 to 300 mm Hg)	–	HPX005GD
0 psi to 15 psi	HPX015AS	HPX015GD
0 psi to 30 psi	HPX030AS	HPX030GD
0 psi to 50 psi	HPX050AS	HPX050GD
0 psi to 100 psi	HPX100AS	HPX100GD

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. **The foregoing is Buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

For application assistance, current specifications, or name of the nearest Authorized Distributor, contact a nearby sales office. Or call:

1-800-537-6945 USA/Canada

1-815-235-6847 International

FAX

1-815-235-6545 USA

INTERNET

www.honeywell.com/sensing

info.sc@honeywell

Honeywell

Sensing and Control

www.honeywell.com/sensing

Honeywell

11 West Spring Street

Freeport, Illinois 61032

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